1:Williams E,G-5 (1923-1925) 1930
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512 sedentary tasks of their own—different always, for none
462 of the crafts are shared by the two sexes. So we may see the clay pot growing coil by coil in the hands of the housewife, the bark-cloth spreading out into a sheet under the blows of her mallet, or the furnace of green leaves, rolling out clouds of smoke, from which she will obtain a small residuum of salt. These and many other such tasks are woman's province, upon which there is no male encroachment.

512 Some work therefore will be going forward in the forenoon, but there is not unusually a quietness in the village during this part of the day. The children may have remained, but they are as likely to be down by the river-side or playing at work in the garden with their elders. Of those men and women who chance to be unoccupied none will think it shame to sleep, and there will be no loud life about the village, perhaps no sound but the ceaseless regular whacking of a bark-cloth maker's stone mallet upon the log.

512 Meanwhile the bulk of the village population is probably
462 employed in the garden. If it be the mere routine of weeding and of gathering a bagful of taro for the pot, gardening is
241 women's work; but whenever the business of clearing, planting, or fencing is afoot, then the whole family will be engaged, or sometimes all the families of a clan, in a somewhat unorganized and happy-go-lucky working bee.

The heat of the garden clearing, fenced in by a high wall of forest, may be almost insufferable to a European, but the native, hatless and streaming with sweat, bears it well enough. The party may be cutting into the bush to increase the area for fresh planting. The women and children clear the undergrowth and trailers and the men deal with the tree trunks. Amid the sound of axe-blows and those loud ex-
512 pulsions of breath—*'ugh, ughl'*—which accompany them and
241 with which the Orokaiva seems to convince himself he is working very hard, may be heard occasionally the clear yodel-like call, something between a shout and a song, which shows the workmen to be in his highest spirits. And when from time to time he brings down a tree, he accompanies the prodigious crash of its fall with a not less prodigious Orokaiva hoot, and turns to the next, or throws

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down his axe and turns to his string bag hanging on a stump for refreshment of betel-nut and a breather.

After the felling of timber there is the burning of it, which is hot work with a vengeance, for the hottest day is regarded as the best opportunity for making a clean sweep of the litter which clearing has left behind it. In none of his gardening operations, however, does the Orokaiva display unnecessary haste. He moves hither and thither, gathering armfuls for the blaze, and gives it a desultory poke or raking with his long stick. Meanwhile, the atmosphere is visibly dancing with the heat, and broad leaves are caught and floated upwards by the ascending currents of air.

Maybe the work on hand is that of fencing. One or two men are driving the stakes and laying the rails that constitute the primitive fence. Theirs is the skilled work—if so it may be called—while it is for the women folk to maintain the supply of materials. Among these unskilled labourers the unmarried daughters, strapping young women who have discarded their bark-cloth skirts for greater freedom, move through the garden as naked as Eve through Paradise, supposing the mother of mankind to have worn at least an armlet or two or a flower in her hair for ornament. The children—particularly the little girls, who show an earlier disposition for work than do their brothers—bear their small and irresponsible share. The baby, meanwhile, hanging in a knitted string bag from some convenient tree-branch, sleeps undisturbed.

The housewife has probably pulled some taro and gathered some of the edible leaves with which it is to be seasoned; and now when the morning's work is over she will stow these into her string bag, which has incredible powers of distension, squat beside it to arrange upon the crown of her head the band which serves as handle, and so rise to her feet to plod contentedly homeward. The baby hangs, still sound asleep, in a second bag upon the woman's stooping back, and her husband, shouldering his spear and digging-stick again, leads the way.

So in their own time most of the families will have returned by noon to the village. There may be something to

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V

THE FOOD QUEST

Gardening

241 LIKE most inhabitants of Papua the Orokaiva are essentially gardeners. As their methods have already been described and criticized in another report,[1] they may be dismissed rather briefly in this; though it will not be forgotten that gardening is the first and foremost activity of the food quest and deserves more space than it will receive here.

The principal product is taro (*ba*); others of importance are sweet potatoes (*keroja*), yam (*kai*), banana and plantain (*pije*), sugar-cane (*jou*), and a variety of andropogon called *ina*. Coco-nuts (*bu*) and betel palms (*sa*) are cultivated everywhere, and the bread-fruit (*oga* and *eumba*), a food of some importance which grows wild, is also found in many villages and gardens.

Though effective enough the gardener's methods are primitive and wasteful. Fresh ground is continually cleared for new plantings, the crop matures and is harvested, and after that the plot is surrendered to the bush. Thus many areas are cleared and planted in succession, until in course of time the gardener finds himself at work on an area which he or his fathers cleared perhaps a score of years before. The gardens of a number of families, sometimes of a whole village, lie side by side in the same clearing, which will often enough be 100 acres and more in area.

241 313 When clearing is in progress an advance party of wife and children tear or cut away the undergrowth (*undaki*), and the husband follows with his trade axe. He cuts the trees at a level of some three or four feet above ground, and thus leaves an untidy forest of stumps which continue to sprout luxuriantly as the garden grows. An especially large tree may be left standing, but if the clearers have the requisite

[1] 'Orokaiva Garden Culture' (Report No. 7), in *Orokaiva Magic*.

1:Williams E,G-5 (1923-1925) 1930
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energy they erect a scaffolding around it to enable them to attack the trunk above the wide buttress-like flanges which are characteristic of so many Papuan trees. Of the smaller tree-trunks some are laid out to mark off one plot from another—for the gardens of the whole clan are likely to be grouped in the same large clearing—others are stacked in pyramids to dry for firewood. The litter of branches and leaves is gathered into heaps and burnt. It would seem that the ideal is to have the ground as bare as possible before planting, and an exceptionally neat gardener will even go to the length of sweeping up the ashes from the burning. But the larger obstacles remain, and the garden will inevitably be obstructed with tree-trunks and those knotty roots which lie on the surface in the tropical bush.

There is no tilling of the soil and no manuring save indirectly through the burning of leaves and branches. There is no attempt at drainage or irrigation; indeed, both would be somewhat difficult on the plains, owing to their low gradient. In the sometimes protracted dry spells the taro offsets must be planted near swampy ground.

The only implement used in actual gardening is the digging stick—usually a hardwood stake which may be improvised on the spot. Sometimes it takes the form of a well-finished crow-bar of black palm-wood with a spatulate point. In planting, the digging stick is driven into the ground and levered back and forth so as to increase the size of the hole. Then the gardener, not deigning to stoop, shoots his taro-top cleverly into its place, adjusts it, if necessary, by means of his nimble great toe, and lightly treads in the earth. Yams are propagated from shoots, being kept in the darkness of the yam-house until the shoots appear. The gardener knows how to plant from cuttings (sugar-cane and *iná*), from suckers (banana), and from seeds (tobacco and some minor garden products), and he transplants rooted seedlings of trees (bread-fruit and the *ajimo* or bark-cloth tree).

The garden is weeded from time to time by women, but when once the taro is well established, it is often left to contend with the weeds. A rough fence surrounds the whole

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241 clearing and protects it more or less effectively against the bush-pigs. Until the whole circuit of this fence is completed it is necessary for some people to live temporarily in the garden, where a smoking fire and an occasional shout are sufficient to scare away the intruders. Sometimes a man will lie in wait by moonlight hoping to spear a pig among his taro, which is a dangerous game and results in many casualties. The various traps and snares which are meant for pigs and others spoliators of the garden will be described under Hunting.

There is little to say concerning the harvesting. A woman gathers from time to time enough for her family's immediate wants, and the taro tops will be replanted. There are thus a number of plots at different stages of advancement in every woman's garden. Sometimes, however, when all the gardens of a clan are well stocked, there will be a simultaneous harvesting to furnish forth a feast. The products of the garden are then loaded ostentatiously upon platforms in the village before their final distribution to the guests.

251 [184] Coco-nuts are placed under a tabu when a large feast is pending and, as they fall, are accumulated in long lines on the ground, or else strung to poles set up as a tall pyramid in the centre of the village. In the southern part of the division yams are kept in a *barasi* or yam-house, the actual repository being a small dark attic under the gabled roof, while the lower story, merely a raised platform, is used as a sitting-place. Only two other methods of food-storage are worth mentioning. *Tauga* nuts are strung together on poles and suspended over the house fires, where they become black and dry; and *Puga* nuts are concealed in holes in creeks, where the moving water in the course of several months purges away their poisonous properties.

Hunting

224 262 Although hunting is only a secondary phase of the food quest, the hunter is distinguished by some skill and ingenuity, by a remarkable keenness for meat, and by a very sensible catholicity of taste. Bush-pigs, wallabies—of the bush and of the grass-lands—rats, birds, lizards, frogs, and

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THE GARDEN CULTURE OF THE OROKAIVA

1. *Introductory*

241 THE advocates of native agriculture put forward two principal arguments. Firstly, they claim it is the most effective way of developing the agricultural resources of the tropics; secondly, and perhaps more confidently, they claim it is the best way of developing the native inhabitants of the tropics. With the first argument this report has no particular concern. The territory has entered upon a course which, however full of difficulties at the outset, may, it is hoped, become a broad and easy path to prosperity. Time will have to decide whether the effort and money expended on the native plantations have from this point of view been well invested.

To the rest of the world, it is true, tropical products are a necessity; and it has been pointed out, forcibly and often, that tropical countries are in duty bound to produce and contribute their share towards this demand. J. C. Willis, for instance, writes:

'the northern powers will not permit that the rich and as yet comparatively undeveloped countries of the tropics should be entirely wasted by being devoted merely to the supply of the food and clothing wants of their own people, when they can also supply the wants of the colder zones in so many indispensable products'.

And again:

'There is further the ethical objection, that no country has a right to exclude itself from the general progress of mankind. . . .'[1]

The administration of any tropical country will obviously aim at a thorough development of its resources and a large export trade. But this is not the only or all-sufficient object of such an administration. There is another, of which it cannot be allowed to take precedence,

[1] J. C. Willis, *Agriculture in the Tropics*, pp. 38, 39, 145 (Camb. Univ. Press, 1909).

2: Williams E, G-5 (1923-1925) 1928
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241 viz. the care and development of the natives. If it were a question of choosing between these two objects, the development of the land and the development of the natives, there can be little doubt that the British administrator would give precedence to the latter. It is significant of modern opinion that in the Mandate for German New Guinea from the League of Nations the first definite injunction should be framed in these already oft-quoted words: 'The mandatory shall promote to the utmost the material and moral well-being and the social progress of the inhabitants of the territory.' Whereas the development of the land is a means, the development of the native is an end.

Happily, however, these two objects are not irreconcilable. C. R. Enock states the case as follows:

> 'The problem for the future development of the tropical lands which lies before the civilized world is . . . a twin problem. It calls for a system under which the coloured native races will fully and fairly enjoy the wealth of their native lands and the fruits of their labour, whilst at the same time the overseas white inhabitants of the globe continue to draw their necessary supplies from the tropics, supplies which their own lands can, of course, not produce, and to which they are geographically entitled as inhabitants of the common earth.'[1]

241 464 By encouraging a system of direct native production it is possible perhaps to solve these two problems simultaneously. But even granted that the solution is a successful one, there still remains what is usually called the 'Native Labour Problem', i.e. the supply of native labour for capitalistic enterprise under European direction. It is no doubt the business of an administration to forward the interests of the commercial element of the white population—in so far as such interests do not conflict with those of the native population, over which the Government naturally takes the stand of a protector. No influence, however, save that of economics, should govern the supply of labour, and no government should be expected

[1] C. R. Enock, *The Tropics*, p. 438 (Grant Richards, 1913).

2: Williams E, G-5 (1923-1925) 1928
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to act as a labour bureau. Consequently the only reasonable attitude for a government to adopt in regard to native labour is that of a neutral, or rather a referee.

The respective merits, from a strictly economic point of view, of capitalistic enterprise and peasant proprietorship are still subject to debate, and from that aforesaid point of view I am unable to form an opinion. But, to repeat, it is rather the moral or social aspect of the question which we have to consider here. While it is still maintained by many that the wide exploitation of native labour by Europeans is economically more efficient, nevertheless, if it can be proved that a system of peasant proprietorship is more conducive to native happiness and prosperity, then the latter system may fairly be given the preference of Government support.

From this aspect the case for native proprietorship may be summarized in very general terms. Firstly, the present writer is wholly opposed to the idea that the native should abandon his own civilization entirely in favour of the white man's; even as an ultimate end this is to be deprecated. The native's true future lies in the development, adaptation, and improvement of his home-grown institutions. If these institutions are to flourish—not remaining static, but changing form and colour with every advance which education and enlightenment can effect—then they may be expected to flourish most on their own ground. Indentured labour—reasonably limited both in regard to length of service and number of recruits—has an influence, physically and morally, for good. But exceeding these limits it has a seriously disintegrating effect, under which the whole fabric of native institutions could eventually fall to pieces.

Secondly, it is well recognized that the native, having been deprived of many of his former interests, now suffers from a lamentable lack of *joie de vivre*. The ever-ready suggestion is work: this is supposed to be the panacea. It is in fact not the complete solution, for all work and no play makes Jack, brown or white, a dull

2: Williams E, G-5 (1923-1925) 1928
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boy; however, it may well be that work is a factor of principal importance in the solution of the difficulty. There is, however, one proviso: work for oneself is *per se* an interest, work for another is probably none at all. If we seriously recommend hard work as an enthralling interest for the native, it must surely be work on his own property, with improvements to tax his ingenuity and profits to spur his energy—not labour with a plantation gang at 10*s*. per month.

Thirdly, there is the question of wealth. Though profits from native enterprise are likely to be small for many years to come, it seems obvious that, given the hoped-for prosperity, the ultimate profit to the peasant proprietor would be greater than to the labourer. The former's returns might be smaller than the latter's wages, but they would at least have the advantage of being continual.

Lastly, there is a consideration of no small importance. Coupled with the declining interest in life which is known so often to afflict subject peoples, there goes a serious loss of self-respect. This sense of inferiority in the native—often unduly exaggerated by the harsh and contemptuous manners of those who have the smallest claim to superiority over him—adds to the hopelessness of his general attitude. There can be little doubt that a system of independence in property and labour would do more to sustain or restore the self-esteem of the native than would labour under the usual conditions of indenture. On the whole it may be conceded that, in respect of native prosperity alone, the system of peasant proprietorship is preferable to that of European enterprise and the exploitation of labour.

It is obvious, however, that native agriculture must not be left entirely to itself. Since it has existed for so many generations with everlasting repetition and presumably little advance, there is no likelihood of a sudden spontaneous improvement. The Papuan Plantations scheme aims at introducing certain new products to the

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native and teaching him to cultivate them. It is hoped that production will eventually reach a commercial scale, and hitherto experiment and progress have been made principally with products of an economic nature. However, the native in all parts of the territory is first and foremost a gardener: his work, his interests, and his livelihood are found mainly in the forest clearing which he plants with yams and taro. It seems that, quite apart from the plantation proper, much might be done to improve or correct the native's wasteful and primitive methods in his own vegetable garden.

If we would seek to improve native horticulture we must begin by understanding it; and further, it is not impossible that the primitive husbandman has evolved certain methods which should be encouraged rather than abolished. J. C. Willis, pointing out that there is hitherto no developed *science* of tropical agriculture, writes: 'The proper course is to find out first of all the actual facts of native knowledge in all agricultural matters, and then to work from these.'[1]

It is, then, with these ideas in mind that I give an account of native horticulture in the Northern Division, in the hope that the ways and means of improving it may suggest themselves to those who are expert in such matters. The plantations scheme holds the promise of certain advantages to the native: an improved garden-culture may be expected to bring about—in different degree—the same results, viz.

(1) a betterment of diet and an increase of wealth;
(2) an advance in social civilization.

A final note: I have not hesitated to include in this report a good deal of matter which is not strictly relevant, but of interest rather to the anthropologist (or even the folklorist) than to the student of horticulture. However, no apology should be required for attempting to embellish a somewhat dry subject.

[1] J. C. Willis, *op. cit.*, p. 162.

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'boo' which another little boy said in another version of the story.[1]

Regarding the betel palm there is an old story of a liaison with a village woman. Nightly the betel palm bends down over her house to visit her, and every morning, when the birds are waking, bends slowly back to stand once more as a silent palm, but leaving around the house a litter of small flowers. Every morning the wife is seen sweeping these aside, till at last suspicions are aroused: the little boy hides behind a tree to spy; the betel palm is discovered in his intrigue and chopped down by the jealous husband. Collapsing he cries, 'Now I am no longer a man but a mere betel palm: take these nuts and eat them,' and he scatters bunches for all the tribes of the north.

The betel pepper grows wild in the bush, and there is a plausible though no doubt imaginative tale of how its properties were discovered. Formerly the areca or betel-nut was chewed with lime alone, and the chewer had not the pleasant hot flavour of a condiment nor the highly becoming colour of red in his mouth. But once a solitary hunter speared a pig, and sat down on the scene of his exploit to refresh himself with lime and betel. Then he looked about him for the wherewithal to bind the pig to a pole. With the usual extempore resource, he dragged down a liana from a near-by tree, and worrying and biting it through with his teeth, by way of the handiest implements he had, discovered as he thought that his mouth was full of blood. But he soon reassured himself, and understood that the redness was due to nothing more than the mordant, peppery juice of the creeper, which had mixed with his mouthful of lime and betel. After this follows the happy scene in which he acquaints his people with the discovery, and the general inauguration of a very ugly habit.

There are other tales of other products, more interest-

[1] 'Coco-nut', in Waiaka dialect, *a*; Aiga, *ba*; Binandele *mutari*. *Mutari—mu-tari*, i.e. 'to say "mu"'.

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241 177 ing than informative. However they may have been acquired, there is a fair range of food products at the disposal of the Orokaiva. The most essential of them have been his since time immemorial; those that he has acquired—either directly or through the agency of the mountain folk—from Europeans serve only to garnish his table. The most important among them are maize—which is a favourite though not grown in great quantity—some varieties of sweet banana, pineapples, and pumpkins. The last mentioned, although grown very commonly, are not really liked: villagers are always anxious to sell them to the white man. An informant once interrupted a conversation to remark that melons, tomatoes, 'pummerkins', and the rest of them, were all humbug; why did not the Government leave the New Guinea men to plant taro, yams, bananas, and sugar-cane, their proper food? It is fortunate that such an extreme view is not often met with; but the Government is prepared to expect a conservative opposition to nearly every new product which it seeks to encourage. It can only be said, very obviously, that, to be spontaneously successful, a new product must, in the primitive condition of native horticulture, be grown with a minimum of effort, and must happen to make an appeal to native taste. Otherwise, as in the case of the new experiment, rice, the work must be compulsory.

4. *The Land System*

423 618 Before we can fully understand the system of using the land, it is necessary to describe the system under which it is owned. Among the Orokaiva there is a multiplicity of small clans, which from time to time increases by subdivision (a process which is in part neutralized by the dying out of older clans). Now the land is owned in reality by the clan. The fact that very commonly the clan is a local unity, being often coincident with the single village, makes this system a simple one in the normal instance. Sometimes, however, the clan is somewhat

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423 618 wrangling as to garden boundaries, but these petty disagreements within the clan, so to speak, are as a rule easily settled. The land disputes which bring endless trouble and labour to the magistrate are disputes between clans. While the land is owned communally the garden is owned individually. Between two adjacent gardens the boundary is made of felled trees, laid end to end, sometimes in two rows so as to form a path between. So long as this ground is under cultivation, not only the produce of the garden but the garden itself is individual property, and a displacement of the boundary would mean a quarrel.

I may now describe the system by which the land is used: it may be called a Rotation of Areas. Each clan will possess a number of tracts of land, which bear locality names. These may or may not be contiguous. Often, owing to migratory habits or to the reclamation of some distant and hitherto unoccupied block of land, they may be somewhat scattered.

A diagram of the areas about Korisata, an Aiga village, though quite inaccurate as to their relative sizes, will serve as illustration. In extent these areas differ greatly, some being measured by acres, some by miles. The boundaries, not obvious to European eyes, are tracks, swamps, creeks, clumps of palms, and so forth. At any one time the village gardens will probably be found in one large clearing, mostly abutting upon one another.

311 241 As the gardeners use up the taro in their old gardens, so from time to time they extend the clearing and plant afresh. Never in the Northern Division, as far as I know, do they immediately plant a second time on the same ground. Thus the gardens gradually extend, or rather progress over a whole 'area', the abandoned parts quickly clothing themselves in a rank luxuriant growth of grass, bushes, and young saplings. When one of the 'areas' has been used up in this manner—and where it is an extensive one this may not be for two or three years—the clan will make a fresh beginning on another

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area; when this is in turn used up, on a third, and so on. By the time all the cultivable areas have been utilized in succession, and a return is made to the first, it is not unlikely that fifteen or twenty years have elapsed. Sometimes, indeed, this intervening period is still longer: I have talked to a man, of say thirty-five years, felling timber along the edge of an existent clearing, at no great distance from the village. He was virtually the headman of his clan and a more than usually reliable informant. He told me that within his time the clan had never before used that particular ground for gardens. His elder brother, however, remembered when the gardens had been there: he was rather decrepit and perhaps fifty.

By way of definitely illustrating this system I may refer to the areas belonging to the Clan Serugahije (which numbers thirteen men, supporting ten women and twenty children). The areas are:

1. Manigausi.
2. Babari.
3. Simbiri Beari.
4. Kimeneda.
5. Ususu.
6. Hasita.

The last to be abandoned was Manigausi, which, when I made a note of it, was already thickly covered with low scrub; all the present gardens were in the area Babari, which was still unexhausted; and the one marked down for the next attack was Simbiri Beari.

One of the larger villages (in which at least two clans were represented) enumerated seventeen areas, ten of which were apparently under virgin forest and used for hunting and fishing alone.

When the gardener finds himself clearing once more on the familiar ground which was used perhaps many years before, he does not necessarily plant on the precise spot which was his previously. There is, as a rule, so much ground to spare that he is welcome to begin where he pleases, and without the risk of offending a fellow clansman. It does sometimes happen, however, that a man acquires a sort of prescriptive right to the imme-

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diate locality where he has worked, and accordingly we sometimes find an easy-going division of an area between families or branches of the clan. No doubt this becomes a stricter division where the available land is circumscribed; for individual ownership of land probably has its origin in scarcity of land.

The examples I have given come from the Aiga tribe, between the middle Opi and Kumusi rivers, where there is no practical limit to cultivable soil, and where, indeed, there still remains a good deal of apparently virgin forest. On the foot-hill country in the south of the Division, where the population is often denser, and in particular on the Buna plains, where the *kunokuro* grass has encroached on the bush to so serious an extent, the same system indeed prevails, but the intervening periods must be shortened.

As will readily be imagined, this system tends to bring about a shifting, almost nomadic, style of horticulture. Sometimes the area is at no small distance from the permanent village. Then we shall find families living for weeks at a time in their garden houses, while their more regular but scarcely superior dwellings in the village stand deserted, with a mat fastened across the doorway. The gardener may plant coco-nuts and betel on the site of his temporary lodging: this is the first step towards the establishment of a new village. By the time that ground comes to be cleared and planted again, these palms will have grown to a good size, and it is very natural, with a people so perpetually given to clan disintegration, that some families should settle permanently on the site of their distant gardens. This, in my opinion, is the ordinary reason for the simultaneous birth of a new village and a new clan.

5. *Clearing and Deforestation*

One was at first tempted to believe that this Rotation of Areas, with such long intervening periods, was devised like the fallow in the interest of fertility. The

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241 311 [412] true reason is so obvious to the native that he seldom thinks of explaining it. The Rotation of Areas is, in fact, a labour-saving device. With the implements at his disposal—formerly his finger-nails, a stick, and a stone axe, nowadays his finger-nails, a stick, a tomahawk, and an 18-inch trade-knife—it is infinitely more difficult to overcome the dense mass of vigorous weeds and bushes which spring up in the wake of the taro, than to clear away the bush of ten years' standing, with its somewhat meagre trees and straggling underwood. It is the primary growth which the native gardener cannot cope with. What he does is to leave the matter to nature. After a few years the saplings have sprung up and overshadowed the weeds and shrubs, and in due course as the bush develops these latter are replaced by a much thinner and less formidable array of trailers and forest undergrowth. Even in bygone days, when a tree had to be brought down with a stone axe, this light bush was an easier problem than the primary growth; now that stone has been replaced by steel, it is easier beyond all comparison.

241 313 461 [533] Sometimes the village will be almost deserted, while its population—men, women, and children—are together engaged in clearing. The work proceeds with a leisurely persistence, continual conversation, and occasional spells, when the woodman sits on a fallen tree and rattles his lime-stick and chews his betel. Now and again some cheerful worker will burst into song as he wields his axe, a mere bar or two of melody, sung at the top of his resonant Orokaiva voice. In beginning and ending it is strangely abrupt, more like a musical shout or a yodel than a song, and altogether a very good-humoured sound.

241 313 Tree felling is for the men; the cutting and dragging aside of undergrowth for the women and children. The heavier trees are suffered to lie where they fall, and will remain till long after the garden has been used and deserted. The lighter timber is stacked in high pyramids to dry for firewood, or else used, end for end, as borders for individual plots. Only the branches, leaves, and

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undergrowth are burned in the clearing. It is the custom to cut trees at a height of three or four feet from the ground, no doubt because this is easier. The resultant forest of stumps may look somewhat untidy, but they are regarded less as obstacles than as conveniences—pillars for the trailing yams, props for the sugar-cane, hat-stands and clothes-horses on which a man may hang his knitted bag in order to keep an eye on it, or a woman her sole garment, the bark-cloth skirt, for greater freedom when working alone at her weeding. The roots are not grubbed, and the soil, though superficially clean, is full of potential rivals for the vegetables which are soon to be planted.

There is a matter associated with clearing and the Rotation of Areas which has long been a cause for some anxiety. This is the spread of the grass plains [1] and the consequent deforestation of certain parts of the Division. It may be worth while putting down the result of my own observations in this matter, though they are not those of a botanist or a forester.

The grass lands are particularly noticeable in the Dobodura district, and to a less extent around Ambasi; but farther inland they are again very prevalent along certain parts of the river Kumusi and here and there along the Mamba and Gira. I have always assumed that some at least of the wide tracts of *kurokuro* are natural. The fact that they are frequently met with along the river banks, where there are here and there distinct evidences of terracing, suggested that in some cases a newly deposited river-flat might happen to be clothed with long grass rather than with bush. However, the question whether the grass is natural or no need not really concern us.

The practical issues are whether the grass country is extending, and, given that it is, what are the causes for its extension. From native informants—whose word may certainly be accepted in such a matter—I have definite instances in which the bush has encroached upon

[1] Vide p. 111, note.

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and finally enveloped former grass patches, and definite instances on the other hand in which the grass has ousted the bush. The Resident Magistrate's observations, however, extending over a good many years, compel us to conclude that the latter process is unfortunately by far the stronger.

The fact seems to be that, if they are left entirely to themselves, the surrounding bush does slowly overcome the grass. But owing to two kinds of human agency, the grass not only holds its own but actually makes headway through the forest. The first agency is fire. At the annual burning of a grass tract by the hunters, the fire sweeps across the open and breaks upon the barrier of trees like a huge wave upon the rocks. After the burning the forest trees are scorched and withered; they have probably received a set-back, while the grass springs up again as green and stubborn and useless as ever.[1]

The other agency is that of the garden. In the proper sequence of events the taro crop should be succeeded by a vigorous growth of weeds, bushes, and young saplings. This is simply left to itself and presently changes into light bush, which is eventually cleared and planted again. But, as the natives will say, the grass is sometimes 'too strong'; it conquers the young growth, and instead of bush we find in the end a grass patch.

The work of weeding is not done thoroughly. Too often one may see a garden fairly bristling with stalks of self-sown *kurokuro*, their beautiful pale plumes swaying gently in the breeze and scattering seeds among the taro. Not the method of clearing in itself, but this subsequent carelessness, is what brings the grass patch into the forest. The fault is with the native: as Job would have told him, he has 'let thistles grow instead of wheat and cockle instead of barley'. It will need another Job, per-

[1] Sometimes I have seen a small fire in the primary growth which ensues after the taro is taken up and the garden abandoned. This is either merely purposeless or else to drive out game; never with the idea of immediate recultivation. Happily it is rarely seen, though it may well be an additional influence in favour of the long grass.

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sonified perhaps in the Agricultural Expert, and with the patience as well as the invective powers of the original, to arrest this gradual spread of the long grass. 137 241

While we may absolve the land system, viz. the Rotation of Areas, from direct responsibility for the deforestation of the northern plains, it will be obvious that it is in other respects a very wasteful one, especially in that it requires so great an extent of land to support the individual. Perhaps a more serious objection to the system is its unsettling influence on the social life of the natives. These questions will be referred to again. In the meantime I may proceed to describe the routine of the native garden.

6. *The Horticultural Routine*

(*a*) *Preparation of Ground and Fertilizing.* The ideal ground for planting is, in native estimation, absolutely bare. The debris of undergrowth and dried leaves is brought together in heaps and burned. The ash is ordinarily left where it stands in little piles; but a more than usually neat gardener would gather it up and throw it away into the bush. 241

I have come upon a whole village preparing ground for rice on the river Eia. The rice was a Government experiment; the village constable was a smart man and conscientious, and the whole community was with him in desiring to do its best to make the rice a success and to earn the approbation of the magistrate. Consequently they had taken somewhat unusual pains in preparation for the planting. When I saw it the earth was almost as bare, brown, and vegetationless as a State School playground. The litter of dry leaves, grass, and so forth was being meticulously removed, and, where some had been burnt, even the ashes were scraped together into wooden pig-dishes, carried off, and, with exemplary tidiness, thrown into the river. [177]

This practice of removing all waste vegetable material from the ground may mean that there is less weeding to

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241 do while the crops are growing, and therefore has sufficient justification in native eyes. To utilize it as a kind of green manure is, under purely native conditions, hardly feasible, since there is no means of digging it into the soil; and to leave a tangle of leaves and twigs on the surface would serve rather to obstruct the gardener than to benefit the garden.

The only real fertilizer which the native might be expected to use under the present system, viz. a lax culture of wide areas, is the ash from the burnt debris of clearing. As far as I am aware, however, he has no genuine conception of the value of ash as a manure, though one thoroughly typical instance came to my notice in which the ash had got into the place of a fertilizer under false pretences. Of the many varieties of taro, distinguishable by the colour or form of their stalks, leaves, &c., there is one named *Punduga* whose stem is almost black. In Koropata, while, as elsewhere, there was a tendency to sweep the ashes together to keep them out of the way, it was the custom to plant the black-stalked *Punduga* right in the black heap of ashes, because of the affinity which would be so obvious to a native. This practice, my informant said, was attended with good results: if that particular black-stemmed taro were not planted on the ashes it would not do so well. There are many other magical fertilizers which will be referred to later on: this is simply a case of magic stumbling upon the truth.

241 312 (*b*) *Draining, Irrigation, &c.* Considering the almost level gradient at which the plain slopes down to the sea and the general absence of contours, the drainage is far better than might be expected. Furthermore, there is, as a rule, such a superfluity of land that the native has simply to avoid the over-wet localities. He is never called upon to drain his swamps. On the lower reaches of the rivers, however—particularly the Mambare—there is less available land and, owing to the flatness, draining would be more difficult. Nevertheless I do not know that garden-

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ing is hampered to any extent in these localities. Owing to natural drainage the flood-waters subside quietly and fairly rapidly, and, as I have said before, the flood as a rule does little harm and is not regarded very seriously by the natives.

It has been pointed out to me that one of the principal difficulties in the drainage of the plains is the tendency for smaller streams to pile up a mass of drift-wood, so as eventually to block their own progress. In the majority of cases this drift-wood seems to have been brought down by floods, but it may be that the case is rendered worse by the natives' habit of throwing felled timber into a convenient river instead of firing it. At any rate the effect is sometimes to cause local inundations, to deflect streams, and to create sour stagnant back-waters.

The native knows well enough the principle of draining, though he has no need to use it for horticulture. In the creek fishing of the inland peoples draining is constantly practised in order to make the water shallow enough for the use of 'New Guinea Dynamite' and scoop-nets. The water is commonly bailed out with sago-branch scoops, but one may also see long gutters (*anders*), elaborate undertakings when we consider that the implements for their construction are a spatulate stick and a knife.

The small engineering feats of the fisherman might be adapted to irrigation as well as drainage, though, I believe, the idea has never suggested itself to the Orokaiva. He knows how to build a rudimentary dam and how to construct a race, but the latter is a loop rejoining the stream and has never been turned into an irrigation channel. The drought, as was observed before, may sometimes be serious, and some simple kind of irrigation would be a blessing to the native at the height of the South-East season. The thought of carrying water is for obvious reasons abhorrent to him; he would rather go hungry. What he actually does is to plant out the *bere* or offsets of his taro in the damp swampy places and so

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241 ensure their survival. In the Wedau country about
312 Bartle Bay irrigation has become a necessity because the strip of cultivable land between the steep grass hills and the coast is of limited area and subject to a yearly dry spell of some severity. The same necessity is not often felt in the Northern Division, though in the foot-hill country, at any rate, the Wedauan methods could have been adopted with advantage.

241 The paucity of good land and the steepness of the hills about Bartle Bay—to continue the comparison—have necessitated another improvement, viz. terracing. There are few localities in the Northern Division where the same conditions prevail. Between the mouths of the Mambare and Opi rivers, however, the coastal belt is a mixture of grass-land, swamp, and hills, and here the gardener is often compelled to assail the steepest acclivities—so steep at times that climbing them is hard enough, to say nothing of cultivating them. In this country, as in the rest of the Division, the heavier timber is allowed for the most part to lie where it falls. But here, whether by intent or not, it serves a purpose. For those trees which fall across the slope or diagonally become paths and standing-places for the gardeners, and as detritus falls and builds up against them, they become virtually terraces. It is true they are not regular and level like those of Bartle Bay, and, as far as I have observed, they are prevented from giving way not by driven stakes, but only by the stumps of the felled trees or by other obstacles on the hill-side. However these points may be only refinements, and it is easy enough to imagine that the idea of terracing might originate independently in the way I have suggested.

244 (*c*) *Planting.* The Orokaiva is no tiller of the soil. He loosens it with a digging-stick in order to plant the taro shoot, and his wife loosens it again when she pulls the taro. Otherwise it is left to look after itself.

Taro is propagated principally by offsets, but also by replanting tops of used tubers. When rain has fallen

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538 that she had cut her thumb off. At that she said, 'Now I am a cuscus,' and ever since the animal has been remarkable for the queer little member which so resembles a truncated human thumb.

244 Sometimes dying leaves are snipped off the growing
794 plant. In a ceremony of the new 'Taro cult' a band of
789 excited men were pushing their way through the taro gardens, headed by one or two leaders who continually sprayed the plants with medicine from their mouths, and here and there as they passed snapped off large leaves. The reason for this, as the leaders themselves explained the matter, was that, as with a fully grown taro the outer leaves fall, it would expedite this development to anticipate it, and make the leaves fall now.

244 I do not know of any other kind of trimming or pruning, save sometimes in the interests of tidiness. On the whole garden plants, large and small, are left very much to themselves. Some exception, however, is made in the
[249] case of sugar-cane, the long stalks being bound together and supported by poles, lest they fall and so become a prey to rot and rat.

241 There seem, however, to be few recognized pests in
136 the ordinary sense of the word; the principal enemies of the native horticulturist are not microbes but animals, bats, and birds. He must be constantly on guard against the bush-pig and minor foes—the flying fox, the rat, the wallaby, and the cockatoo, not to mention his fellow
[173] man. Formerly, in a kind of native Paradise where work was at a minimum, the bush-pig was content with bush food—roots and herbs and such-like. But exchanging confidences with the rat, he learnt that the latter's food was taro and succulent sugar-cane. After that he invaded the gardens, and it has been necessary ever since to build a fence.

417 The garden fence should properly surround the whole
241 group of clan gardens. It is built in sections, each man being responsible for the part nearest his own garden. But the work is rather laborious, and the gardens are

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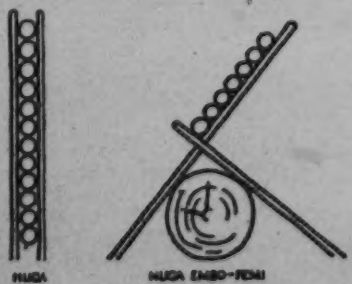
often well advanced before the circle is complete. The actual building of the fence is men's work, though women carry timber. The reason why women do not build is, I am told, that the fence would be no good.[1]

The several varieties of pig-trap have been mentioned before (pp. 113–14). They are commonly built just within the garden fence so that the raiders are not only frustrated but captured. Until the fence is completed some people must live in the garden houses to scare away the pigs with their voices. It is said also that the smell of smoke will make them suspicious and keep them off, and one may sometimes see a large fire piled with green leaves and kindled towards evening. On moonlight nights men will wait with spears on the garden platforms and attack the pig among the taro—a really hazardous undertaking, and one which is responsible for many terrible casualties. Nowadays the villagers will often beseech the loan of one's shot-gun and shooting boy on a moonlight evening.

Some well-advanced gardens become infested with rat-like marsupials. There are miniature traps for them—constructed on the principle of the pig-trap with a falling weight—and another ingenious kind of pitfall, which, like the former, is rather a plaything of little boys than a serious business of the gardener. The pitfall is a round hole with steep or shelving sides; from the edge towards the centre there projects a piece of wood, with what may be called a green-stick fracture; on the tip of this little platform is placed the bait. The rat climbs out

[1] The ordinary fence (*Haga*) consists of a series of horizontal rails laid one atop of the other and between uprights at frequent intervals. There is another kind, *Haga-Embo-pani* (possibly the 'big man' or 'elder man' fence), where advantage is taken of a large tree-trunk, and the fence made to slope across it. Two cross-sections are shown:



HAGA HAGA EMBO-PANI

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241 224 towards the bait, passes the fatal point of weakness, and, as the stick breaks under his weight, falls into the abysm.

241 224 136 A more serious nuisance to the gardener is the flying fox (*dipere*), a very destructive creature whose favourite foods are bananas, papaw, and bread-fruit. In certain parts, their daylight camping grounds, one may see flocks of them hanging in dense clusters from the high branches, or circling slowly round to settle again and renew their slumbers. In the Isivita district may be found a kind of snare for the flying foxes suspended in a high tree. It takes the form of a roughly knitted bag, just large enough to hold a bread-fruit. To this bag are attached a number of running nooses, say six or seven inches long, which form a confused tangle all around it. The bat attacks the bread-fruit in its clumsy fashion; to reach the fruit it can hardly avoid slipping its head into a noose, and then, trying to get clear, hangs itself. Another contrivance, somewhat devilish, was seen at Wasida. The cane palms have trailing branches with cruel recurved thorns which have a way of tearing your shirt or sweeping your hat off as you pass by in the bush. A cluster of these slender trailers is tied in a bunch to a stick, much after the manner of a witch's broom, and the villager stands in the darkness by his banana tree, the witch's broom or *asora* held close to the bunch of fruit. When the flying fox settles, flapping noisily on the bananas, one swift jerk of the *asora* brings him down, with the grappling hooks in the delicate membranes of his wings.

241 223 136 The only bird which does much harm to the natives is the white cockatoo, who plays havoc with young coco-nuts. In some villages long cables of rattan cane are attached to the tops of the coco-nut palms, sometimes with hollow shells of the cycad *Puga* for rattles. Sometimes the native will aim a stone with his sling. But as the cockatoo is a bold bird and the native an easy-going man, the young coco-nuts for the most part continue to be gnawed.

241 674 There is yet another garden pest—the dishonest neigh-

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bour. Theft is not altogether uncommon and in former times may have led to serious reprisals. An old man tells how he found a woman stealing his taro, and immediately dealt her a blow on the back with his pineapple club, with corrective but happily not fatal results. So also we find tales of ravaged gardens, tale-bearing, accusations, and the indeterminate duels in which the Orokaiva rejoices to find a vent for his anger. As prevention is better than cure, however, the garden is often guarded by some taboo sign—a few wisps of grass laid across the path, a thin tape of bark tied to sticks and encircling the garden, or some coco-nut leaflets knotted about the trunk of the palm. These are nearly always respected, partly through mere law-abidingness, partly because of the veiled threat of sorcery which they imply.

Besides these frail but effective safeguards, the gardener used occasionally to resort to practical measures more after the manner of spring-guns and man-traps. The *oivo* is a miniature pitfall, lined with sharp little spikes, which, I was assured, are sometimes tipped with *inja*, or sorcerer's medicine. Concealed with leaves they were placed in gardens, or more usually on tracks leading into the village, so that any sorcerer who came prowling after dark might make a false step and betray his presence by a yell. Nowadays, I am told, the practice has been abandoned, and the only cases in which I heard of the *oivo*'s actual effectiveness were those in which the wrong man had been caught—perhaps naturally, as a guilty trespasser would lie low and conceal his injuries. A certain well-known character, ex-Corporal Bia, at the Mambare mouth, went, as he says, to inspect his brother's pineapples; but the inspection was cut short, just at the stage, perhaps when the sampling might have begun, by a step into the *oivo*.

(*e*) *Harvesting, Storing, &c.* The taro is planted from time to time, and used as it matures. Almost daily the wife will go out to her garden, do a little weeding, and fill her *eti*, or string bag, with freshly pulled taro. If she

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251 flour; no pounded maize; no tapioca. The two latter products, maize and maniota, are very recent introductions; the two former are, in most places, so regular and abundant as not to need preserving.

7. *Garden Magic*

● 241 789 It would be possible to digress too widely upon the subject of garden magic, but no description of the gardener's methods would be complete without a reference to those processes which in our eyes are magic, but in his are common sense.

We have seen that he has no real knowledge of fertilizing, but nevertheless he makes continual use of magical fertilizers. Into the hole prepared for the taro he may drop a fragment of some leaf before planting. Such leaves, called *ba sivo*, 'taro medicine', are of many and various kinds. There is in fact a particular plant which goes by the name of *Ba-sivo*, but any other leaf which will promote a vigorous growth of the taro is, *ipso facto*, *ba sivo*. The knowledge of some is common property, others are secret; all are of course magical and useless.

The justification for their use, so far as it is made explicit, appears to have resided originally in a point of resemblance. Thus, for instance, one reliable *ba sivo* was said to be *Iori babiva*. This is in fact a strong flourishing plant that grows by the water, much larger and ranker than the taro, but possessing a sufficient resemblance to it in leaf and stalk. It is felt that a fragment of *Iori babiva*, planted together with the taro, will make the latter grow like the former, which the gardener, with more of hope than of reasoned confidence, has set it for a model. So we find the leaf of a large tree like *Berago* used for *ba sivo*. The idea is not exactly that the taro will 'wax a great tree', but simply that it will grow strongly. A *kai-sivo*, or yam medicine, was, on the same principle—if we can use that word for such a hazy mental association—a certain vigorous trailing plant called *Hajo*.

There is a more elementary form of magic than this

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of the fertilizer. The first component of the magical complex is simply wishing; the second, perhaps, is expressing the wish in speech. Thus we hear the gardener using strange exclamations, imitative and hortatory, as he plants. First, as he drives his pointed digging-stick into the sodden earth he ejaculates or simply mutters, '*sigigigi* . . . !' with a rapid following on of the syllables which completely baffles the European who tries to imitate. As the same meaningless word is used when the spear sinks into the flank of the pig, it is presumably a sort of onomatope, and meant by the gardener to make easier the sinking of his stick into the ground. When he sometimes says 'Brrrr . . .' it is perhaps with the same vague idea.

As he plants the taro he may apostrophize it: *O ba erejo*, 'Taro arise!' by which he means that the leaves should sprout up quickly; or, *O ba beji*, 'Taro be hungry!' i.e. be greedy and take nourishment from the soil; or *O ba anumbejo*, 'Taro sit!' i.e. let the tuber sit comfortably and firmly in the ground. He will also *Aja ba*, 'Mother taro!' by which he may mean that the plant should be prolific and put forth many offsets, or perhaps simply, as some explain it, 'What a whopper!'

Similarly as he plants sugar-cane he will mutter, '*Poruporuporu* . . . !' with the same inimitable rapidity. This is a conventional exclamation and was never explained to me; but as the large bamboo is called *Poru*, it may well enough have meant originally that the stalks of the sugar-cane should grow up like those of the much larger bamboo which they resemble. Again, as he thrusts the cutting into the ground he may be heard making luscious sucking noises between his teeth, 'Sip, sip', and coughing, as if he were already enjoying the sweet juice of the sugar-cane in his own unutterably noisy manner, and half choking himself in his eagerness.

In the old life of the Orokaiva there seem to be no large ceremonies in which the direct idea is that of fertility. There is, however, a strong conviction that

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241 789 769 the spirits of the dead can influence the crops for good or ill. Hence to some extent come the practices of placating the dead with offerings (especially on small platforms, or *barau*, set up in the actual gardens) and of exhorting the dead man just before burial to depart to a good place where there are pigs in plenty and taro in plenty, whence he may send pigs and taro to his surviving friends. Again, for some reason which remains obscure, the garden of the dead man is tabooed to his immediate friends, though it may be used by others. In general it is felt that the spirits of the dead can prosper the gardens or blast them, and it is worth while using all possible tact to avoid the latter alternative.

241 794 769 Within the last few years, however, a movement popularly known as the 'Taro cult' has swept through the whole of the Orokaiva country. As I have dealt with this movement in another report, it will not be necessary to make more than a passing reference to it here. Near the home of the cult, viz. about the mouth of the Mambare, it would seem that the original idea has held its ground: it is a cult of the spirit of the taro. But over the greater part of the Division the new movement has adapted itself in a very significant way to old belief. It is no longer a cult of the taro itself, but of the spirits of the dead who make the taro grow. The ceremonial, although constantly altered in some minor point by local Taro men, who desire merely to go one better than those from whom they have acquired it, has remained substantially the same. It consists especially of the *kasamba* (the singing, to the accompaniment of drums and conches, of songs which are meant to make the taro prosper); of feasting and entertaining with certain formalities and the use of special utensils; of treating the plants with certain medicines; of observing certain food taboos; sometimes of dancing; and always of simulating or surrendering to various kinds of bodily seizures. All these things are supposed to make the taro grow. In the whole cult, which with rare exceptions has been

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adopted by all the Orokaiva, there appears to be hardly any special practice that could in any way benefit the taro crop. Nevertheless, despite certain very undesirable features, the Taro cult does no serious amount of harm to those who practise it in moderation, and may perhaps actually benefit the taro in so far as it causes, if possible, more attention to be paid to the plant and its cultivation.

As there are magical methods used for the benefit of the gardens there are others which may be used, clandestinely, to its detriment. There is a tale of a village whose gardens failed again and again, despite all the industry of the villagers. Discouraged and mystified they decide to leave a small boy to watch for the putative sorcerer. Concealed under a pile of firewood the little spy observes a *sovai*—a devil-devil—decked with leaves and grass come dancing into the garden. He is hideously skinny and ugly, and as he performs his ungainly dance he sings *Utu nauko, kobo nauko, ebu tungako*, 'Like my leg, like my arm, like the neck of a drum', meaning that the taro will be poor and shrivelled, like his own scrawny limbs, or the slender grip of the drum which he beats. This, like most native stories, has a happy ending. The villagers lie in wait, and on his next appearance the *sovai* is seized, dispatched, and cast into a deep water, after which the gardens prosper as they should.

Whenever things go wrong unexplicably the native is prone to impute his misfortunes to a sorcerer. No doubt sorcery is supposed to be practised a hundred times more often than it is really practised. But there is one rather cunning method which may serve as an example of black magic at work in the garden. When a man finds that a thief has been making free with his taro, sugar-cane, or whatever it may be, he will look about for some remains of the stolen food, and then setting upright in the ground a length of springy stick, he will hold this fragment of food against the upper end, and, bending the stick back, shoot it out of the garden after by means of a catapult. The effect of this is to make the thief a waster,

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a neglector of gardens, to drive him away not only from your garden but from his own. The process is called *batetekari*, 'throwing away the taro', and the word is used not only in the literal sense but for other kinds of sorcery.

8. *Garden Labour*

The Orokaiva words for 'work' and 'garden' are one and the same—*pure*.[1] It has been frequently pointed out that the garden provides the mainstay of the native's life, and requires the greatest share of what hard work he has to do. A rough compilation made in an Aiga village showed that 48 per cent. of a man's work, 43 per cent. of a woman's, were in the garden. But in this compilation the term 'work' was allowed a very wide connotation, and covered a good deal of what the native would himself hardly call by that name. A stricter definition would have made the proportion much higher.

Part of the work is in the nature of routine—the weeding, the replanting of small batches as the taro is used, the felling of a little extra bush, and so on; part is initial work—the felling of a large area and the planting out of all available *bere*, and the construction of the fence. The larger share of the routine falls to the women; the hardest of the initial work to the men. The rough percentages given above do not indicate of course that women do less work in the gardens than men do. Rather the contrary is the case: the wife's working hours are longer both in the village and out of it.

In native horticulture, as we might expect, the immediate family—a man, his wife or wives, and their children—is a self-sufficing unit. When there are two wives it will be usual for them to work on separate plots of the husband's garden. Girls accompany their mothers to work, from the time when they are carried, as small somnolent balls only visible through the meshes of a string bag, until they are buxom damsels who expect to see admirers peeping at them from the bush. Boys may

[1] Aiga *pure*; Binandele, *bun*.

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be somewhat later in starting work, but they do their share. There are very few slackers in an Orokaiva village. As has been indicated, there is no effective division of labour in the garden save that between the sexes, and, to a less extent, that between old and young. There are incipient traces of trades and special vocations among the Orokaiva, but in gardening there is virtually no such differentiation. Every man, unless he be aged or a cripple, has his own garden, and he and his wife and children support themselves.

Sometimes the whole clan will co-operate. This is seen especially when a move is made and work begun on a new area. Sometimes by invitation another village will come to assist in these initial operations. This is the nearest approach that the Orokaiva makes to the African working bee. Passing at noon through the village of Ohoraburari—so named because the 'dance of the rooster' was once performed there—we see the women already busy, and a great array of black pots on the fires. A little farther and we come to the new garden clearing, where we find at work the whole population, men and women, of a neighbouring village, Totoimaburari, 'the dance of Totoima', the legendary mankiller. Working with them are a few of the Ohoraburari people—such as are not more interested in helping prepare the feast for their paying guests.

The work proceeds steadily, but with little system. There is nothing like a drive, or a rank of men moving forward and working abreast; but rather a number of scattered individuals, engaged in a somewhat aimless and leisurely kind of dibbling. On the edge of the garden is a platform, shoulder high, with a miniature ladder from the ground. This is the *haraa*, or *ba gaga*, the platform on which offerings are set for the spirits of the dead, who govern the taro crop; and the ladder is intended in some manner to facilitate their access to the offerings. On this occasion the *haraa* is hung about with tufts of the brilliant feathers which make up the Orokaiva head-

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241 476 dresses, and with ornaments of shell, pig-tusks, and dogs' teeth, mock offerings to the spirits which are meant to win their goodwill without costing anything. No doubt there would be more enthusiasm about the working bee if these people only had a brew of African beer awaiting them instead of the too sober pleasures of a dish of taro. 241 476 461 The working bee, with its easy-going sociability and slow but cheerful progress, is an excellent custom but not a very striking one: it takes place comparatively seldom and seems on the whole an institution which is not developed to the full extent of its possibilities.[1] Such enthusiasm as does prevail at the beginning has a native way of petering out. Tasks well begun are often unfinished, for the Papuan seems to lack that proper desire to carry his work to the neat, logical, square finish, in which we take so much satisfaction. He works, not for the pleasure of working (as why should he?) but to ensure his food-supply from day to day and a periodical surplus for a feast.

9. *An Improved Horticulture*

241 Having completed a survey of Orokaiva horticulture, I may attempt now to offer some criticisms and suggest some improvements. If this last section should appear to be outbalanced by the rather discursive description which has preceded it, I make the same excuse here as in other reports. The observations of one who is admittedly no gardener, but who has seen many taro gardens, and has, at any rate, eaten a lot of taro, may be worth setting down in full, so that others with an expert knowledge of horticulture may find them useful to build upon, irrespective of the suggestions which follow.

[1] Mr. G. H. Murray, Controller of Native Plantations, has drawn my attention to the concerted methods of tilling practised by many natives on the south coast of Papua, where a number of men will work forward in line with their digging-sticks, and each line of broken ground 'looks as if it had been carefully ploughed'. Descriptions of the same sort of work are given in H. Newton's *In Far New Guinea*, p. 123, and Jennes and Ballantyne's *Northern D'Entrecasteaux*, p. 123. It is not necessary, therefore, to go to Africa for a contrast to Orokaiva methods.

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(*a*) *Defects of the Present System.* We have seen the Orokaiva gardener at work in his forest clearing, and it is perhaps doubtful whether we should admire the simple skill which has met his simple requirements so effectively, or deplore the primitiveness which seems to give such small promise of development.

We have seen that he has hardly a tool to his hand; that he does not till the soil; that having planted his plant he leaves it for the most part to the mercies of the elements, trusting as much to a muttered spell as to a back-bending diligence in the tending of it. We have seen the untidiness of his garden plot, the absence of any regularity in his planting; a certain methodical persistence in his labour, but no developed system of co-operation and no effective division of tasks. We have seen that, despite the tropical abundance in which he lives, he is reduced to hunger by a whim of the weather, for he does not lay by overmuch except towards an engorgement with his friends. And we have seen that he is restricted to, and apparently content with, a general monotony of diet.

Worse than all these is the prodigal system which I have called the Rotation of Areas. This is, of course, no new thing, but a method common to all primitive forest gardeners. It is in effect the same system as the *jhuming* of India, the *chena* of Ceylon, and the *ladang* of Malaya, and on one count or another has everywhere met with severe condemnation. Willis states that 'Vast areas of good forest land have been ruined in southern Asia by this destructive practice, and in most countries *chena* permits for crown land are only issued now under stress of very hard times and failure of the regular crops'.[1]

The view that it is primarily a labour-saving device is endorsed by Ling Roth,[2] who says,

'it is probably rare that cultivated land is deserted on account of its

[1] Vide J. C. Willis, *op. cit.*, p. 2.

[2] H. Ling Roth (*J. A. I.* xvi, pp. 109–22). Quoted from Thomas, *Source Book for Social Origins*, pp. 102, 103.

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arriving at the state described as "exhausted", i.e. when crops can no longer be grown in consequence of the withdrawal, through too much cultivation, of their food constituents, for savages do not cultivate on such an intense system as to bring about that state of the soil'.

The same author remarks of the Dyak rice-growers, that they 'do not desert their farms because the land is exhausted, but because it is less trouble to cut down fresh jungle than to eradicate the weeds which have sprung up after the padi has been gathered'.

There are two arguments against this system of land utilization in the Northern Division; first, that it is economically wasteful; second, that it is unsettling and makes for social instability.

With regard to the first question there can be no doubt that, although under present conditions the Rotation of Areas is a labour-saving system, yet it involves a great expenditure of time and energy which might be avoided, or more profitably turned to account, under a system of more intensive cultivation. It will be the thesis of this section to advocate such a system. In the meantime it is enough to point out that the gardener not only spends a good deal of time on the track between his house and his garden (which may be literally miles away), but is continually employed on what is an unprofitable task—because it could be an unnecessary one—viz. the felling of forest timber.

This loss of time and this unnecessary increase of work may be trivial points, because the native generally has too much of the one and too little of the other. In two other respects, however, the Rotation of Areas is more obviously wasteful. In most parts of Papua the population is sparse, but it is well known that the native is reluctant to sell the land which his people have used for cultivation. The system we are discussing necessarily makes the area *per capita* very large. It must be admitted that the land problem, i.e. the acquisition of land by the European capitalist, has not been a very serious one in Papua. But if or when this problem arises, the difficulty

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of it will reside in the present system of an *extensive* and extravagant use of the land by its native owners. Apart from the other advantages which should attend a more *intensive* cultivation, it should make available great areas of land (if they are required) for European enterprise. Lastly, the Rotation of Areas is indirectly responsible for the deforestation of the north. This question has been discussed already (pp. 131–3). We have seen that the spread of the grass lands is due proximately to the negligence of the natives, but it is the fact that the scene of their labours is constantly changing that makes the expansion of the grass plains a serious problem.

Apart from these economic drawbacks the system which I have described exercises a moral or social influence which seems directly inimical to progress. The tendency of the Orokaiva (and of many other peoples in Papua) to subdivide and scatter has caused the magistrate continual anxiety and trouble; and the undesirability of this habit has long been recognized. As the Native Regulation expresses it,

> 'The practice of people abandoning their old homes in settled villages and scattering themselves in small groups over the face of the country is growing in the land. Experience proves that this isolated way of living tends to breed animosities, and increase superstitious fears and to debase those that follow it.'[1]

In pre-Government days, if the natives are to be believed, the villages were very commonly larger than they are at present. Tribal enmities and the constant fear of raiders made it necessary for the members of the clan to cluster together for mutual protection. But with the advent of Government control this fear has passed away. The individual clan or even family feels secure from attack however isolated it may be. Consequently we find a growing tendency for the small group to form an independent settlement. I have already referred to this matter (p. 129) but a repetition may be pardoned.

[1] Native Regulations, 1922, No. 90.

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My own observations lead me to believe that the commonest way for such an independent settlement to come into being is for a few related families, or sometimes a single family, to form a temporary settlement or camp on the distant site of the garden. In the very simple organization of the Orokaiva the family group is self-sufficing. There is no economic necessity for cohesion between family groups, and to avoid the trouble of coming and going the temporary settlement is easily converted into a permanent one on the spot where its supplies are found. Thus it will appear that the habit of making gardens on distant sites, and of changing these sites from time to time, tends to encourage a shifting, semi-nomadic kind of horticulture. There can be little doubt that the Rotation of Areas system is one of the most potent causes of village and clan disintegration.

(*b*) *Intensive Culture and Closer Settlement.* The remedy for these negative and positive evils lies, I believe, in a more intensive culture and in the closer settlement which would accompany it. Instead of a wide area of forest with here and there a patch titillated into temporary productiveness and then overwhelmed by the tropical bush or sometimes subjugated by the ever-advancing long grass, we might hope to see a continuous tract of land, a garden settlement, which, if not kept under continuous cultivation, might still be kept under human control. Such may be a very distant ideal, but I believe the advantages which would come of its realization may be expressed in more general terms than those of mere gardening.

It has been affirmed often enough that various civilizations have been based upon various kinds of agriculture, or even upon the cultivation of particular products; as for instance those of Egypt upon corn, of Mexico and Peru upon maize, even that of Uganda upon the banana. Such statements are perhaps more plausible than really demonstrable: they are usually backed up less by facts than by inferences. However, it may well be that

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000 economic complexity. We have noted the absence of any developed division of labour or co-operation among the Orokaiva; and not only economically, but socially as well, there is too much of an even tone or a dead level among them. Such a condition is not progressive. If we would wish to see a home-grown development of native civilization, it must lie in the direction of differentiation of labour and the evolution of social grades. These are somewhat beyond our immediate scope, but the intermediate or preparatory stage is, I believe, the more intensive culture of the soil by a firmly established rural settlement.

(*c*) *Practical Suggestions*. It is futile to dwell upon the hypothetical results of intensive culture and closer settlement without considering how these latter may be brought into being. There are several subjects of obvious importance, viz.:

1. Tools.
2. Rotation of crops.
3. Instruction.

I propose to deal with these rather shortly.

241 412 (1) *Tools*. The horticulture of Papua has not even reached the stage of *Hackbau*. It is incomparably inferior to that of Africa or the East, and principally, no doubt, for the reason that our natives have never used a hoe. 'Imperfect tools tend to perpetuate the lower stage.'[1] Our first business, if we would educate the native gardener, is to place an implement in his hand. At present [177] he is indebted to us for a knife and a steel axe. These have made the work of clearing easier, and have left him with more time on his hands. His gardening tool proper is still the digging-stick. It is true that certain tools are provided for native plantations, but it is understood that what this report endeavours to advocate is an improved village horticulture, irrespective of the native plantations,

[1] Ratzel, *History of Mankind*, vol. i, p. 91 (Macmillan). Quoted in Thomas, *Source Book for Social Origins*, p. 96.

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and such horticulture cannot improve on a mere digging-stick.

We all know, however, that it is not enough merely to present the native with a tool and the appropriate instructions. He must be taught to use it, not how to use it. But I shall return to that question after a few pages more. In the meantime there is one consideration that calls for notice. It is a mistake to expect any swift, revolutionary advance. One need not quarrel with the use of machinery on native plantations, where the main object is perhaps a large output, and where there is expert supervision always available. But—as it is perhaps unnecessary to note—such measures are in themselves of little educative value to the native gardener. Willis may be quoted at length on this subject:

'The mistake has been to try to make too large a step at once. The most modern machinery has been introduced directly. Of course the villager does not understand it properly, he cannot repair it if anything goes wrong, he cannot afford to buy it, and in many other ways it is unsuited to local conditions. The proper way of progress is the scientific one. The local tool should be carefully studied and compared with other tools of similar nature or used for similar purposes, and then when the principle of the whole subject is understood, the local tool should be modified slightly in the desired direction, so slightly that the villager need not have his prejudices offended, nor find anything that he cannot understand or repair in the new instrument.'[1]

A missionary in Africa tells how a merchant brought a number of English-made hoe-blades to Zululand. They were superior in every way to the native article, but of a different shape. 'The Kaffirs would not tolerate the innovation, and the improved hoes were unsaleable.' The disconsolate merchant then thought of ordering another consignment to be made strictly after the Zulu pattern. The results were all that he hoped for, and now the iron hoe-blade is almost always purchased from European traders.[2] Apart from the deplorable fact that a native industry was pressed out by cheap 'wholesale',

[1] J. C. Willis, *op. cit.*, p. 169.
[2] Rev. J. Shooter, *The Kafirs of Natal* (p. 17).

4: Chinnery & Haddon E-5 (ca. 1915)1917
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concerned discarded individual practices in favour of co-operation; or, more strictly, changed from the worship of individual ghosts to the worship of the "Food-Spirit." The Kava-Keva is, I understand, positively a new idea, and not an attempt to revive old customs. Whilst observing the Kava-Keva rites on the second occasion I invited Mr Copland King, a clergyman of the Anglican Mission, to attend with me, and he has since written a paper on the subject. Mr King and I are the only Europeans who witnessed the beginning of the Kava-Keva rites, and I alone witnessed the beginning of the Kekesi rites. The following account of the two cults is based upon information supplied to me by Boninia and Bia at the inception.

1. THE "KAVA-KEVA" RITES.—Boninia is an elderly native of Taututu, one of the villages of the Dowai-ia division of the Binandere tribe, on the lower Mamba River. He was a man of no reputation as a magician or prophet. Early, however, in 1914 he visited the other villages of his group—Gauoro (on the coast), Duvira, and Tsiu (up the river)—and announced that he had been "struck down" in his garden by the "Spirit of Taro" (the staple diet). He had been told, he said, to warn the people that their dilatory methods of cultivation had given displeasure, and that unless they observed a ritual which had been taught to him, the "Food-Spirit" would destroy their gardens and force them to live on sago. Boninia's message was received without enthusiasm, and the ritual was declined. Nothing more came of the incident until the following November, when a young girl named Dasiga, of the village of Gauoro, developed a condition of mental abnormality. For a day or two she was quite oblivious of her surroundings, and chanted mechanically a new song, which was identified as part of the ritual disclosed by the man Boninia. In response to the request of the people Boninia examined the girl, and, in conformity with his advice, she was taken into the gardens, and there, amongst the taro leaves, as he had foretold, the "Spirit left her," and she recovered her normal state. Two or three days later she returned to her village. Then, almost immediately, she relapsed into her Kava-Keva condition, and simultaneously one other Gauoro girl and four young men "were visited by the Spirit." A second messenger to Boninia found that the "sickness" had appeared in each of the villages of the group, and that several natives were "possessed" and under treatment by Boninia. The headmen of the group were considerably alarmed, and called a meeting in Gauoro. Here those who had been "visited" disclosed the communica-

4: Chinnery & Haddon E-5 (ca. 1915)1917
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Standing	Chorus .	*Ba iso nav* (repeated several times).
Sitting	Solo .	*Kekesi lolo na ba iso nau.*
Sitting	Chorus .	*Iri-e! Iri-e! Iri-e! Ta ba Iri-e!*
Kneeling	Solo (slowly) .	*Koi ba Kekesi ba iu ba na Iubanawai ohi to.*
Standing	Chorus .	*Ire-e! Ire-e! Ire-e!*
Kneeling (hands clasped and eyes closed)	Chorus .	*Hallikuri! Hallibate! Hallikauni!*
Standing (with drums)	Chorus .	*Manamba da ko-e* *Kekesi da manamba da ko-e* *Kesi da manamba da ko-e* *Kekesi da manamba da ko-e.*
Kneeling (as above)	Chorus .	*Hallikuri! Hallibate! Hallikauni!*
Standing (with drums)	Chorus .	*Taba da manambi ko-e* *Ovivi da manambi ko-e* *Godara da manambi ko-e.*

(Thus recite all names of taro in turn.)

Kesi is the name of the steamer in which I travel from place to place. And the songs I am giving you must be sung regularly by all the people, otherwise trouble will come to you. The vitality of your food supply depends upon the manner in which you obey my desires. When going to and from the gardens the people are not to straggle along, but to fall in, similar to the police working for the Government. The following commands may be given to the people whilst working in the garden or coming to and from the same:—*A kush! A sha! A shun man! A shun be! A hon de shen! A som!* These commands are to be issued by the man Yavevi.' This is all that was said to me on that occasion, and the two Spirits left me. Shortly afterwards Kekesi came by himself, and, in a different manner to his previous speaking, said the following:—'Wak kaise Dasiga kerere. Wai kaise Dasiga kerere! Kekesi Boinumbai kononini tai vavini konininio ato bos Kesi Jesu Kerisa ked kom turn bush etai taba kai sol manau giama vavini slem bush Jesu Kerisa Kekesi dugus igit goot dugus goot vork work gardini finati giama Dasiga nart Mamau soro sino Government Missionary all same Kekesi met Missionary taro sino.'[1] Kekesi's speech was not in the Binandere language. I understood it, and it means that one boy had stolen his brother's wife, and that Kekesi was very angry with him and desired me to tell him so. The man's name is Dasiga. Kekesi has not visited me since."

[1] This conversation appears to be an indiscriminate mixture of New Guinea words of various districts and of many words that are unknown, but are obviously inventions of Bia, as I proved when two days after taking them down phonetically I asked Bia to repeat to me the teachings and conversation of Kekesi. He pleaded "bad memory."